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No. 3009 P. 1

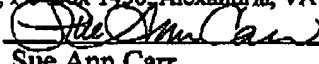
FEB 13 2007 PATENT
Attorney Docket No. 00908-05

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

<i>Applicant:</i>	Faqiang Guo, et al.	}	<i>Customer No.</i>	34444
<i>Serial No.</i>	10/559,907		<i>Art Unit:</i>	1742
<i>Filing Date:</i>	December 8, 2005		<i>Examiner:</i>	Unknown
<i>Title:</i>	Thermally Stable Calcium-Aluminum Bulk Amorphous Metals With Low Mass Density			

Certificate of Facsimile Under 37 CFR §1.8

I hereby certify that this correspondence is being sent via facsimile to 571-273-8300 under 37 C.F.R. §1.8 on the date indicated below and is addressed to Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450.
Date: February 13, 2007



Sue Ann Carr

Request for Corrected Filing Receipt

Commissioner for Patents
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Alexandria, VA 22313-1450

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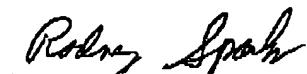
Sir:

It is noted on the Filing Receipt mailed January 23, 2007 for the above identified application that "data provided by applicant is not consistent with PTO records" (first page attached). Applicant respectfully requests that the PTO records be corrected. Transmitted herewith is a copy of the first pages of the filing receipts for Provisional Application Nos. 60/490,806 filed July 29, 2003 and 60/524,506 filed November 24, 2003. We also attach the cover page of International Publication No. WO 2004/111283 and the first page of PCT/US2004/016757 showing the related applications.

Please contact me with any questions at the telephone number listed below. Thank you for your assistance.

Respectfully submitted,

Date: February 13, 2007



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University of Virginia Patent Foundation
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No. 3009, age P. 2-3



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Poon-Calcium

APPL NO.	FILING OR 371 (C) DATE	ART UNIT	FIL FEE REC'D	ATTY.DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/559,907	✓12/08/2005	1742	300	J00908-05	3	14	3

CONFIRMATION NO. 9522 ✓

34444

UNIVERSITY OF VIRGINIA PATENT FOUNDATION
250 WEST MAIN STREET, SUITE 300
CHARLOTTESVILLE, VA 22902

FILING RECEIPT



OC000000022088987

Date Mailed: 01/23/2007

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please mail to the Commissioner for Patents P.O. Box 1450 Alexandria Va 22313-1450. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

✓Faqiang Guo, Charlottesville, VA;
✓S. Joseph Poon, Charlottesville, VA;
✓Gary J. Shiflet, Charlottesville, VA;

Power of Attorney: The patent practitioners associated with Customer Number 34444.

Domestic Priority data as claimed by applicant

✓This application is a 371 of PCT/US04/16757 05/27/2004
✓which claims benefit of 60/477,605 06/11/2003
✓and claims benefit of 60/490,806 07/29/2003 *
✓and claims benefit of 60/524,506 11/24/2003 *

→ (*Data provided by applicant is not consistent with PTO records.

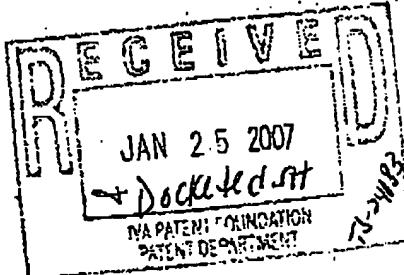
Foreign Applications

If Required, Foreign Filing License Granted: 01/20/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US10/559,907

Projected Publication Date: 05/03/2007

Non-Publication Request: No



Feb. 13. 2007 10:43AM UVA Patent Foundation

No. 3009 P. 3



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APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE RECD	ATTY.DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
60/490,806 ✓	07/29/2003 ✓	80		00908-02✓		2	

CONFIRMATION NO. 6044

34444
UNIVERSITY OF VIRGINIA PATENT FOUNDATION
1224 WEST MAIN STREET, SUITE 1-110
CHARLOTTESVILLE, VA 22903

FILING RECEIPT



OC000000011020729

Date Mailed: 10/10/2003

Receipt is acknowledged of this provisional Patent Application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

Faqiang Guo, Charlottesville, VA; ✓
S. Joseph Poon, Charlottesville, VA; ✓
Gary J. Shiflet, Charlottesville, VA; ✓

If Required, Foreign Filing License Granted: 10/09/2003

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY ** ✓

Title

Bulk amorphous metals based on calcium and aluminum which exhibit high thermal stability and related method of using and making the same ✓

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15



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APPL NO.	FILING OR 371 (o) DATE	ART UNIT	FIL FEE REC'D	ATTY.DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
60/524,506✓	11/24/2003✓	80		00908-03		3	

CONFIRMATION NO. 4522

34444
 UNIVERSITY OF VIRGINIA PATENT FOUNDATION
 1224 WEST MAIN STREET, SUITE 1-110
 CHARLOTTESVILLE, VA 22903

FILING RECEIPT



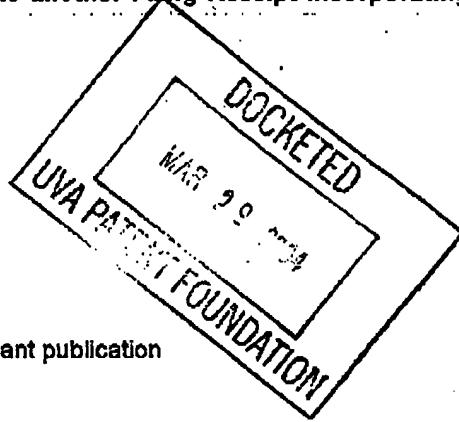
SOC900009012193128*

Date Mailed: 03/25/2004

Receipt is acknowledged of this provisional Patent Application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

Faqiang Guo, Charlottesville, VA;✓
 S. Joseph Poon, Charlottesville, VA;✓
 Gary J. Shiflet, Charlottesville, VA;✓



If Required, Foreign Filing License Granted: 03/25/2004

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **✓

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✓Bulk amorphous metals based on calcium and aluminum which exhibit high thermal stability and related method of using and making the same

LICENSE FOR FOREIGN FILING UNDER
 Title 35, United States Code, Section 184
 Title 37, Code of Federal Regulations, 5.11 & 5.15

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
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PCT

(10) International Publication Number
WO 2004/111283 A1

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- (21) International Application Number: PCT/US2004/016757
- (22) International Filing Date: 27 May 2004 (27.05.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
- | | | |
|------------|-------------------------------|----|
| 60/477,605 | 11 June 2003 (11.06.2003) | US |
| 60/490,806 | 29 July 2003 (29.07.2003) | US |
| 60/524,506 | 24 November 2003 (24.11.2003) | US |

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AB, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TI, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TI, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BR, BJ, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US): UNIVERSITY OF VIRGINIA PATENT FOUNDATION [US/US]; 1224 West Main Street 1-110, Charlottesville, VA 22903 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): GUO, Fajiang [CN/US]; 499 Seymour Road, No.8, Charlottesville, VA 22903 (US). POON, S., Joseph [US/US]; 3185 Malbon Drive, Charlottesville, VA 22911 (US). SHIFLET, Gary, J. [US/US]; 1718 King Mountain Road, Charlottesville, VA 22901 (US).

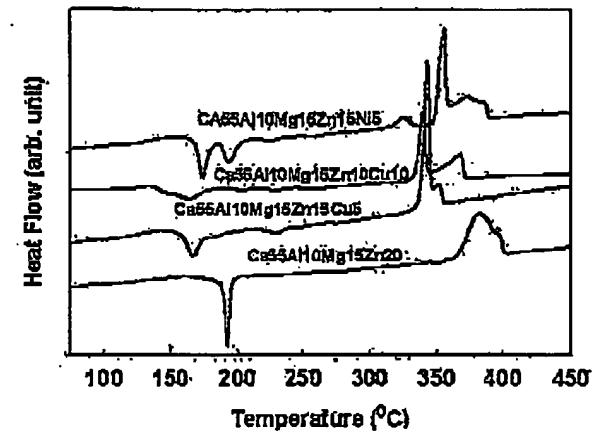
(74) Agent: BRENN, John, P.; University of Virginia Patent Foundation, 1224 West Main Street, Suite 1-110, Charlottesville, VA 22903 (US).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: THERMALLY STABLE CALCIUM-ALUMINUM BULK AMORPHOUS METAL WITH LOW MASS DENSITY



(57) Abstract: The present invention relates to novel calcium based amorphous alloys with high thermal stability and low mass density represented by the general formula: CaAl_Q, wherein Q represents one or more elements selected from the group consisting of Cu, Ag, Zn and Mg. Typically, the atomic percentage of the calcium is about 50%.

WO 2004/111283

PCT/US2004/016757

**Thermally Stable Calcium-Aluminum Bulk Amorphous Metals
With Low Mass Density**

Related Applications

5 This application claims priority under 35 USC §119(e) to US Provisional Application Serial Nos. 60/477,605, filed June 11, 2003, 60/490,806, filed July 29, 2003 and 60/524,506, filed November 24, 2003, the disclosures of which are incorporated herein by reference.

10 US Government Rights

This invention was made with United States Government support under an Air Force Office of Scientific Research Contract No. F33615-01-2-5217 awarded by the Defense Advance Research Projects Agency. The United States Government has certain rights in the invention.

15

Background

Bulk-solidifying amorphous metal alloys (a.k.a. bulk metallic glasses) are those alloys that can form an amorphous phase upon cooling the melt at a rate of several hundred degrees Kelvin per second or lower. Amorphous alloys usually 20 exhibit certain superior properties than their crystalline counterparts with the same or similar compositions, such as tensile or compressive strength, wear resistance and corrosion resistance as well as oxidation resistance. As promising structural materials, the study of light-metal-based amorphous alloys has grown in the past two decades. To date, light-metal-based amorphous alloys have been successfully 25 prepared in several alloy systems, including Mg-TM-RE (wherein TM represents late transition metals, such as Cu and Ni, and RE represents rare earth metals, such as Y and La), Al-TM-RE (including Ni, Co and Fe as the TM element and Gd and Y as the RE element), Al-Cu-Mg-Ni and recently reported Ca-Cu-Mg alloys.

Table 1 lists the glass transition temperature T_g, onset temperature of 30 crystallization T_x, reduced glass transition temperature T_{rg} (defined as glass transition temperature over the melting point of the alloy in Kelvin), calculated mass